

Notice of Allowability

Application No.

10/805,147

Examiner

Jennifer M. Dolan

Applicant(s)

KNALL ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amdt. of 1/17/06.
2. ☒ The allowed claim(s) is/are 2 and 6-10.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

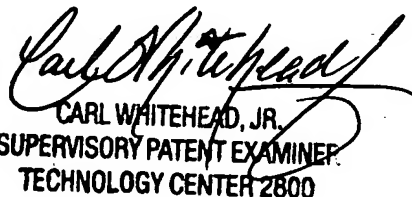
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


CARL WHITEHEAD, JR.
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

DETAILED ACTION

This action is in response to the Amendment filed on 17 January 2006

Allowable Subject Matter

1. Claims 2 and 6-10 are allowed.
2. The Examiner finds the Applicant's arguments of 1/19/06 to be persuasive, and adds the following remarks on reasons for allowance:

The primary reason for allowance is the requirement of a lamination of a silicide layer, an antifuse layer, a lightly doped semiconductor layer, and a heavily doped semiconductor layer, wherein a Schottky diode is formed when the antifuse layer is breached. Although some of the claim elements, such as using silicon oxide as an antifuse layer, using silicide as a conductive material for metal rail conductors, and using a Schottky diode as a steering element for a memory cell are taught in the prior art (see US 6,034,882 to Johnson et al), there is no suggestion of using the specific lamination of a conductor, an antifuse on and contacting the conductor, and the two claimed semiconductor layers on and contacting the antifuse. Instead, the closest prior art of record using a Schottky diode in combination with an antifuse layer either teaches a stack of a conductor, a semiconductor layer, the antifuse, another semiconductor layer, and another conductor (US 6,034,882 to Johnson et al.) or a stack of a semiconductor layer, a conductor, the antifuse, and another conductor (see US 4,569,121 to Lim et al. or US 6,051,851 to Ohmi).

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In these prior art structures, the Schottky diode is already present in the structure prior to the rupturing of the antifuse, and the structures generally require a large number of layers (see for example, figure 6(a) of Johnson et al.), which is distinctly different and has different electrical properties than the presently claimed invention, wherein the Schottky diode layers are separated by the antifuse such that the diode is not formed until after the antifuse has been ruptured. Since the prior art provides no motivations for using the specific layered structure as claimed or for modifying the prior art to obtain such a structure (i.e. by omitting or rearranging the material layers), it is the Examiner's opinion that the claimed structure would not have been apparent to a person having ordinary skill in the art.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer M. Dolan whose telephone number is (571) 272-1690. The examiner can normally be reached on Monday-Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl W. Whitehead, Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer M. Dolan
Examiner
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jmd